CLAIMS

1. A method of compensating for sampling frequency offset in an OFDM receiver which samples a received multicarrier signal and performs a Fourier Transform on the sampled signal to extract data therefrom, the method comprising

performing a separate Fourier Transform on the sampled signal, the separate Fourier Transform being a partial and/or reduced Fourier Transform to derive phase values for at least two points thereof, and

compensating for the sampling frequency offset in dependence on the phase values.

2. A method as claimed in claim 1, comprising

deriving for each point a phase variation representing the difference between phases at two parts of an OFDM symbol,

the compensation for the sampling frequency offset being dependent upon the difference between the phase variations for the respective points.

3. A method as claimed in claim 2, wherein the two parts of the OFDM symbol are separated by an interval corresponding to the useful part of a symbol which also includes a guard space.

4. A method as claimed in claim 3, wherein one part is at the end of the guard space.

5. A method as claimed in any preceding claim, wherein the separate Fourier Transform is a reduced Fourier Transform.

6. A method as claimed in claim 1, wherein each of the two points of the separate Fourier Transform corresponds to a respective pilot signal,

the method including the step of determining a phase variation representing the difference between the determined phase value for the point and the expected phase value of the respective pilot signal,

wherein the compensation for the sampling frequency offset is dependent on the difference between the phase variations for the respective points.

7. A method as claimed in any preceding claim, including performing the compensation for the sampling frequency offset in dependence on phase values measured over a plurality of OFDM symbols.

8. A method as claimed in any preceding claim, wherein the separate Fourier Transform is a partial Fourier Transform.

9. A method as claimed in claim 8, wherein the

partial Fourier Transform is performed using Goertzel's algorithm.

10. A method as claimed in any preceding claim, wherein the phase values for said points are calculated only in response to selected samples of the received signal.

11. A method as claimed in any preceding claim, wherein the compensation for the sampling frequency offset is performed by adjusting the sampling frequency.

12. A method as claimed in any one of claims 1 to 10, wherein the compensation for the sampling frequency offset is performed by controlling interpolation of the sampled signal.

13. A method of synchronising an OFDM receiver, the method comprising

compensating the sampling frequency offset of the OFDM receiver using a method as claimed in any preceding claim, and

compensating for a local oscillator frequency offset in dependence upon one of the phase values for at least one of said points.

14. A method of compensating for a local oscillator frequency offset in an OFDM receiver which samples a received multicarrier signal and performs a Fourier Transform on the

sampled signal to extract data therefrom, the method comprising

performing a separate Fourier Transform on the sampled signal, the separate Fourier Transform being a partial and/or reduced Fourier Transform to derive a phase value for at least one point thereof, and

compensating for the local oscillator frequency offset in dependence on the phase value.

15. A method as claimed in claim 14, comprising deriving for said point a phase variation representing the difference between phases at two parts of an OFDM symbol,

the compensation of the local oscillator frequency offset being dependent upon the phase variation.

16. A method as claimed in claim 15, wherein the two parts of the OFDM symbol are separated by an interval corresponding to the useful part of a symbol which also includes a guard space.

17. A method as claimed in claim 16, wherein one part is at the end of the guard space.

18. A method as claimed in any one of Claims 14 to 17, wherein the separate Fourier Transform is a reduced Fourier Transform.

19. A method as claimed in claim 14, wherein said point of the separate Fourier Transform corresponds to a pilot signal,

the method including the step of determining a phase variation representing the difference between the determined phase value for the point and the expected phase value of the respective pilot signal,

wherein the compensation of the local frequency offset is dependent on the phase variation.

20. A method as claimed in any one of Claims 14 to 19, including performing the compensation of the local oscillator frequency offset in dependence on phase values measured over a plurality of OFDM symbols.

21. A method as claimed in any one of Claims 14 to 20, wherein the separate Fourier Transform is a partial Fourier Transform.

22. A method as claimed in claim 21, wherein the partial Fourier Transform is performed using Goertzel's algorithm.

23. A method as claimed in any one of Claims 14 to 22, wherein the phase values for said point are calculated only in response to selected samples of the received signal.

24. A method as claimed in any one of claims 14 to 23, wherein the compensation for the local oscillator frequency offset is perfomred by adjusting the local oscillator frequency.

25. A method as claimed in any one of claims 14 to 23, wherein the compensation for the local oscillator frequency offset is performed by phase rotation of received and sampled signals.

26. A method of synchronising an OFDM receiver which samples a received multicarrier signal and performs a Fourier Transform on the sampled signal to extract data therefrom, the method comprising

performing a separate Fourier Transform on the sampled signal, the separate Fourier Transform comprising a partial and/or reduced Fourier Transform to derive phase values for at least two points thereof,

determining, for each point, a phase variation corresponding to the difference between the phase values at different parts of an OFDM symbol separated by the useful part of the symbol,

compensating for an offset of the sampling frequency in dependence on the difference between the phase variations and

compensating for an offset of a local oscillator frequency in dependence on at least one of the phase variations.

27. An OFDM receiver operable to perform a synchronising operation using a method as claimed in any preceding claim.